

Appl. No. 10/613,372  
Amdt dated Nov. 6, 2003  
Voluntary Amendment

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-33 (canceled)

Claims 34 (new): A system for processing an input signal, the system comprising:

- an adaptive predistortion subsystem for receiving said input signal and for producing a predistorted signal by applying a deliberate predistortion to said input signal; and
- a signal processing subsystem receiving and processing said predistorted signal and producing a system output signal, wherein
  - said adaptive predistortion subsystem distorts said input signal to compensate for distortions in said system output signal;
  - said signal processing subsystem decomposes said predistorted signal into separate components, each of said separate components being processed separately;
  - said processing subsystem combines said components after processing to produce said system output signal; and
  - said deliberate predistortion applied to said input signal by said adaptive predistortion subsystem to produce said predistorted signal is adjusted based on said system output signal.

Claim 35 (new): A system according to claim 34 wherein said signal processing subsystem comprises:

- a signal decomposer for decomposing said predistorted signal into at

least two components;

- at least two signal component processor blocks, each signal processor block receiving an output of said signal decomposer and each signal processor block separately processes said output received from said signal decomposer; and

- a combiner receiving a processed output from each of said at least two signal component processor blocks, said combiner producing said system output signal from said processed outputs of said at least two signal component processor blocks..

Claim 36 (new): A system according to claim 35 wherein at least one of said at least two signal component processor blocks includes an amplifier.

Claim 37 (new): A system according to claim 36 wherein said amplifier is a non-linear amplifier.

Claim 38 (new): A system according to claim 34 wherein said system is part of a signal transmission system.

Claim 39 (new): A system according to claim 34 wherein at least some of said distortions are due to said combiner.

Claim 40 (new): A system according to claim 36 wherein said amplifier is a switch mode amplifier.

Claim 41 (new): A system according to claim 36 wherein said amplifier has a low output impedance.

Claim 42 (new): A system according to claim 34 wherein said deliberate predistortion includes magnitude distortions which adjust a magnitude of said input signal.

Claim 43 (new): A system according to claim 34 wherein said deliberate

predistortion includes phase distortions which adjust a phase of said input signal.

Claim 44 (new): A system according to claim 34 wherein said deliberate predistortion is based on at least one entry in a lookup table.

Claim 45 (new): A method of processing an input signal to produce a system output signal, the method comprising:

- a) receiving said input signal;
- b) applying a deliberate predistortion to said input signal to result in a predistorted signal;
- c) decomposing said predistorted signal into at least two component signals;
- d) combining said at least two component signals to produce said system output signal;
- e) adjusting said deliberate predistortion based on said system output signal.

Claim 46 (new): A method according to claim 45 wherein said system output signal is an RF modulated version of said input signal.

Claim 47 (new): A method according to claim 45 further including a processing step of separately processing each of said at least two component signals prior to step d).

Claim 48 (new): A method according to claim 47 wherein said processing step includes amplifying at least one of said at least two component signals.

Claim 49 (new): A method according to claim 47 wherein said processing step includes phase modulating at least one of said at least two component signals.

Claim 50 (new): A method according to claim 45 wherein step a) further includes the step of accessing an entry in a lookup table, said deliberate predistortion being

based on said entry.

Claim 51 (new): A method according to claim 50 wherein said deliberate predistortion is based on an interpolation of entries in said table.

Claim 52 (new): A system according to claim 34 wherein said predistortion subsystem receives a replica of said system output signal.

Claim 53 (new): A system according to claim 35 wherein said deliberate predistortion is dependent on differences between said input signal and said replica of said system output signal.

Claim 54 (new): A system according to claim 44 wherein entries in said lookup table are periodically updated based on characteristics of a replica of said system output signal.

Claim 55 (new): A system according to claim 44 wherein said deliberate predistortion is based on an interpolation of entries in said table.

Claim 56 (new): A system according to claim 34 wherein said predistortion subsystem includes:

- determining means for determining said deliberate predistortion;
- adjustment means for applying said deliberate predistortion to said input signal;
- update means for periodically updating said determining means based on said system output signal.

Claim 57 (new): A system according to claim 56 wherein said adjustment means receives parameters of said deliberate predistortion from said determining means.

Claim 58 (new): A method according to claim 45 further including the step of taking

a difference between said input signal and a replica of said system output signal to determine said characteristics of said system output signal.

Claim 59 (new): A method according to claim 50 further including the step of updating at least one entry in said table.

Claim 60 (new): An adaptive predistortion subsystem for use with a signal processing system which produces a system output signal, the predistortion subsystem comprising:

- determining means for determining a deliberate predistortion to be applied to an input signal;
- adjustment means for applying said deliberate predistortion to said input signal;
- update means for periodically updating said determining means based on characteristics of said system output signal.

Claim 61 (new): An adaptive predistortion subsystem according to claim 60 wherein said adjustment means receives parameters of said deliberate predistortion from said determining means.

Claim 62 (new): An adaptive predistortion subsystem according to claim 60 wherein said determining means comprises a lookup table having entries, said entries being used to determine said deliberate predistortion.

Claim 63 (new): An adaptive predistortion subsystem according to claim 62 wherein said determining means further comprises interpolating means for determining values not found in said lookup table.

Claim 64 (new): An adaptive predistortion subsystem according to claim 60 wherein said deliberate predistortion is dependent on differences between said input signal and said replica of said system output signal.

Claim 65 (new): A method according to claim 45 wherein said deliberate predistortion is at least partially based on characteristics of said system output signal.

Claim 66 (new): A method according to claim 65 wherein said deliberate predistortion is determined in an iterative manner during transmission of said system output signal.

Claim 67 (new): A system according to claim 34 wherein said predistorted signal is adjusted based on said system output signal and said input signal.

Claim 68 (new): A method according to claim 45 wherein for step e), said deliberate predistortion is adjusted based on said system output signal and said input signal.

Claim 69 (new): A system according to claim 34 wherein said update means periodically updates said determining means based on said system output signal and said input signal.